Amendments to the Claims:

The amended claims of the response filed on May 4, 2006 ("the May 2006 Response") are presumed to have been entered, since there were no objections to the amended claims raised in the Notice of Non-Compliant Amendment.

Listing of claims:

1. (previously presented) A method of obtaining solution suggestions for problems, said method comprising the steps of;

(1) problem identification;

(2) automatic problem reformulation as a natural language or Boolean query; and

(3) automatically submitting the query to one or more knowledge bases for searching.

2. (previously presented) A system for obtaining solution suggestions for problems, said system

comprising;

means for identifying a problem;

means for formulating a problem as a natural language or Boolean query;

at least one database;

means for submitting said query to said at least one database.

3. (previously presented) A system for obtaining solution suggestions for problems comprising; a program embodied on a computer readable storage medium; a computer having an output device; a central processing unit; a communication means to one or more knowledge search engines and databases (a knowledge search engine and a database define a knowledge base) said program comprising;

a portion or portions responsive to user input for generating identification of a problem;

a portion or portions for generating from the identification of the problem, automatic reformulation of the problem as a natural language query;

a portion or portions for automatically submitting the query to at least one knowledge base; and

a portion or portions for providing responses from the at least one knowledge base to the output device.

4. (original) The system of claim 3 further wherein said problem reformulation as a natural language query is done by a portion or portions of the program that translates functional relationships into semantic relationships.

5. (previously presented) The system of claim 3 further wherein said portion or portions of the program for generating automatic reformulation of the problem generates reformulation of the problem as a natural language query or as a Boolean query.

6. (previously presented) The system of claim 3 further wherein the at least one knowledge base is a semantic analysis knowledge base.

7. (previously presented) The system of claim 3 wherein at least one knowledge base is resident on a storage medium co-located with the computer.

8. (previously presented) The system of claim 3 wherein at least one knowledge base is resident on a corporate server.

9. (previously presented) The system of claim 3 wherein at least one knowledge base is remotely accessed.

10. (previously presented) The system of claim 3 wherein the at least one knowledge base is a patent collection that is remotely accessed.

11. (previously presented) The system of claim 3 wherein the program has a portion or portions for accessing a plurality of knowledge bases that are selected from;

at least one knowledge base resident on a storage medium co-located with the computer,

at least one knowledge base on a corporate server,

at least one knowledge base accessed by an internet link.

12. (original) The system of claim 3 wherein the query is submitted to the at least one knowledge base without intervention by a user.

13. (previously presented) The system of claim 3 in which the portion or portions for generating identification of the problem is done by an analysis to determine functional relationships between components under consideration and the portion or portions for generating from automatic reformulation as a query is done by translating a functional relationship into a natural language query.

14. (original) The system of claim 3 in which identification of the problem is done by root cause analysis that establishes one or more nodes between events under consideration and the automatic reformulation translates a node into a natural language query

15. (original) The system of claim 11 wherein at least one of said knowledge bases is a semantic analysis knowledge base.

16. (previously presented) A computer program product for programming one or more processors to perform a method of obtaining solution suggestions to problems the method comprising the steps of;

problem identification;

automatic problem reformulation as a natural language or Boolean query; and

automatically submitting the query to at least one knowledge base for searching; and

presenting solution suggestions that result from searching of the one or more knowledge bases.

17. (previously presented) The computer program product of claim 16 further wherein said problem reformulation as a natural language query is done by a portion or portions of the program that translates functional relationships into semantic relationships.

18. (previously presented) The computer program product of claim 16 further wherein one or more of the at last one knowledge base is a semantic analysis knowledge base.

19. (previously presented) The computer program product of claim 16 wherein the at least one knowledge base is resident on a storage medium co-located with at least one of the one or more processors.

20. (previously presented) The computer program product of claim 16 wherein the at least one knowledge base is resident on a corporate server.

21. (previously presented) The computer program product of claim 16 wherein the at least one knowledge base is remotely accessed.

22. (previously presented) The computer program product of claim 16 wherein the at least one knowledge base is a patent collection that is remotely accessed.

23. (previously presented) The computer program product of claim 16 wherein the program has a portion or portions for accessing a plurality of knowledge bases that are selected from;

at least one knowledge base resident on a storage medium co-located with at least one of the one or more processors;

at least one knowledge base on a corporate server,

at least one knowledge base accessed by an internet link.

24. (previously presented) The computer program product of claim 16 wherein the query is submitted to the at least one knowledge base without intervention by a user.

25. (previously presented) The computer program product of claim 16 in which identification of the problem is done an analysis of functional relationships between components under consideration and the automatic reformulation as a query is done by translating a functional relationship into a natural language query.

26. (previously presented) The computer program product of claim 16 in which the problem identification step is done by root cause analysis that establishes one or more nodes between events under consideration and the automatic problem reformulation step translates a node into a natural language query.

27. (previously presented) The computer program product of claim 23 wherein at least one of said knowledge bases is a semantic analysis knowledge base.

28. (previously presented) The method of claim 1 further comprising the step of presenting solution suggestions that result from searching of the one or more knowledge bases.

Amendments to the Specification - Replacement and Added Paragraphs

1. In accordance with 37 CFR 1.121(b), please replace the paragraph beginning on page 6, line 17, with the following paragraph:

1) Replacement paragraph with markings, additions are underlined and deletions are double bracketed:

> The second element introduced to the problem analysis tools is a query formulator. In one embodiment, the machine representation of a function model is used as the source of key elements with which to build a query. For example, in ~~Figure~~ Fig. 2, the arrow labeled "scrub" which connects the system component labeled "liquid soap" to the system component labeled "hand" represents the need to find a mechanism by which liquid soap can be made to scrub hands. Referring to Fig. 4, in this example, in one embodiment, the connecting arrow is interpreted as a desired action (scrub) and the system component labeled "hand" is interpreted as the object of the desired action (these are displayed at "Problem Description"). Along with the graphical display of the problem description the Problems & Solutions portion of the screen provides proposed approaches to solve the problem. Using the functional relationship the system constructs the query "How to scrub the hand?" as a query to be submitted to the knowledge search tool by automatic reformulation by translating the functional relationship into a natural language query. The query is shown in the Solutions portion of the screen which also shows the several types of knowledge bases that are available to the user. These knowledge bases are resident in three possible places. One is on the user's own computer memory, or portable memory devices such as CDs that can accessed at the user's location. Another is called Corporate Knowledge which is typically on one or more servers resident or privately accessible to user's within the organization such as a corporation. Another is publicly accessible search engines and databases such as Google (a search engine) and the U.S. Patent and Trademark Office patent collection (a searchable database). In one embodiment, an entry in the Problem & Solutions window will be automatically selected (or it can be programmed to allow the user to select) and similarly will automatically start the searching of the three categories of databases. The software allows configuration by a user to, for example, rewrite the Query, and to limit the search. As shown in Fig. 8, the automatic (or user selected) search of all three categories is underway (see "searching" on the right side). In Fig. 9 there is shown that searching is completed with 3 relevant results in the Corporate Knowledge database, but no results in the other databases. Fig. ~~910~~ shows the results of the search posted along with necessary links to access the results.

2) Replacement paragraph without markings:

The second element introduced to the problem analysis tools is a query formulator. In one embodiment, the machine representation of a function model is used as the source of key elements with which to build a query. For example, in Fig. 2, the arrow labeled "scrub" which connects the system component labeled "liquid soap" to the system component labeled "hand" represents the need to find a mechanism by which liquid soap can be made to scrub hands. Referring to Fig. 4, in this example, in one embodiment, the connecting arrow is interpreted as a desired action (scrub) and the system component labeled "hand" is interpreted as the object of the desired action (these are displayed at "Problem Description"). Along with the graphical display of the problem description the Problems & Solutions portion of the screen provides proposed approaches to solve the problem. Using the functional relationship the system constructs the query "How to scrub the hand?" as a query to be submitted to the knowledge search tool by automatic reformulation by translating the functional relationship into a natural language query. The query is shown in the Solutions portion of the screen which also shows the several types of knowledge bases that are available to the user. These knowledge bases are resident in three possible places. One is on the user's own computer memory, or portable memory devices such as CDs that can accessed at the user's location. Another is called Corporate Knowledge which is typically on one or more servers resident or privately accessible to user's within the organization such as a corporation. Another is publicly accessible search engines and databases such as Google (a search engine) and the U.S. Patent and Trademark Office patent collection (a searchable database). In one embodiment, an entry in the Problem & Solutions window will be automatically selected (or it can be programmed to allow the user to select) and similarly will automatically start the searching of the three categories of databases. The software allows configuration by a user to, for example, rewrite the Query, and to limit the search. As shown in Fig. 8, the automatic (or user selected) search of all three categories is underway (see "searching" on the right side). In Fig. 9 there is shown that searching is completed with 3 relevant results in the Corporate Knowledge database, but no results in the other databases. Fig. 9 shows the results of the search posted along with necessary links to access the results.

2. In accordance with 37 CFR 1.121(b), please add the following new paragraph on page 8, after the paragraph ending on line 3 and before the paragraph beginning on line 4:

Fig. 7 shows a root cause analysis of a problem. The problem can be characterized starting with an undesirable event, namely "car is too old." That is, "insufficient power" is the cause of "car is too old;" and, similarly, "engine runs rough" is the cause of "insufficient power." Such a root cause analysis will provide artifacts within the processor that can be reformulated as a natural language query.

3. In accordance with 37 CFR 1.121(b), please replace the paragraph beginning on page 8, line 4, with the following paragraph:

1) Replacement paragraph with markings, additions are underlined and deletions are double bracketed:

It will be apparent to the skilled practitioner that in alternative embodiments the specific mechanism for extraction of key query elements from a given problem analysis tool's machine representation will vary with the tool as will the mechanism for construction of the automatically formed query. For example, ~~Figure 10~~ Fig. 4 depicts a graphical representation corresponding to the results of using a problem analysis tool which automated the process of root cause analysis. In this situation, the result of the root cause analysis has a machine representation which is a directed graph wherein each node, a, b, c, of the graph represents a problem statement and each edge (shown as arrows connecting the nodes) of the graph represents a cause-effect relationship. In this case, the machine representation of each problem statement contains a well formed natural language fragment. Thus, if the user wishes to address the problem that the engine runs rough, since the user has the presumed goal of preventing the identified problem, by selecting the node a, "engine runs rough" the user gives the program an assignment to create the formulation of the query which it does by generating a statement of the form "How to prevent engine runs rough?", in which the node is translated into the query statement.

2) Replacement paragraph without markings:

It will be apparent to the skilled practitioner that in alternative embodiments the specific mechanism for extraction of key query elements from a given problem analysis tool's machine representation will vary with the tool as will the mechanism for construction of the automatically formed query. For example, Fig. 4 depicts a graphical representation corresponding to the results of using a problem analysis tool which automated the process of root cause analysis. In this situation, the result

of the root cause analysis has a machine representation which is a directed graph wherein each node, a, b, c, of the graph represents a problem statement and each edge (shown as arrows connecting the nodes) of the graph represents a cause-effect relationship. In this case, the machine representation of each problem statement contains a well formed natural language fragment. Thus, if the user wishes to address the problem that the engine runs rough, since the user has the presumed goal of preventing the identified problem, by selecting the node a, "engine runs rough" the user gives the program an assignment to create the formulation of the query which it does by generating a statement of the form "How to prevent engine runs rough?", in which the node is translated into the query statement.